

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of

Takeshi KOBAYASHI et al.

Appln. No.: 10/560,460      Group Art Unit: 2831

Filed: December 14, 2005

For: SEPARATOR FOR ELECTRIC DOUBLE LAYER CAPACITOR  
AND ELECTRIC DOUBLE LAYER CAPACITOR CONTAINING SAME

DECLARATION UNDER 37 C.F.R. 1.132

Honorable Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

I, Masaaki KAWABE, citizen of Japan, residing at c/o  
Japan Vilene Company Ltd., 7, kitatone, Koga-shi, Ibaraki  
306-0213, Japan, do sincerely and solemnly declare:

THAT I am by profession a chemical engineer having  
earned a Master's degree in chemical engineering from  
Nagaoka University of Technology in March, 1988;

THAT since April, 1991, I have been an employee of  
Japan Vilene Company Ltd., and have been engaged in the  
development of an electret filter, the research of a surface  
treatment of a nonwoven fabric with plasma at atmospheric  
pressure, and the research of electrospinning nanofibers;

THAT I am a coinventor of the invention of the above-  
identified U.S. Patent Application (referred to as "the  
present invention" hereinbelow) and therefore, am completely  
familiar with the present invention;

THAT I have reviewed and understood the Office Action  
of November 28, 2008; and

THAT in order to show the patentability of the present invention, the following experiment was carried out under my direction and supervision.

#### EXPERIMENT

Preparation of ultrafine fibrous aggregate for comparison

The procedures described in Example 1 of the specification of the above-identified U.S. Patent Application (referred to as "the present specification" hereinbelow) were repeated, except that the heat treatment at 160°C for 5 minutes did not carried out, to prepare an ultrafine fibrous aggregate (mass per unit area: 4.6 g/m<sup>2</sup>, thickness: 24 μm) for comparison.

More particularly, a fiberizable solution (solid content concentration: 12wt%, viscosity: 1600 mPa·s) was prepared by dissolving polyacrylonitrile resin (softening temperature: 190 to 240°C, pyrolysis temperature: 350°C) in N,N-dimethyl-formamide.

A fiberizing apparatus was prepared by connecting a syringe to a polytetrafluoroethylene tube, and attaching a stainless steel nozzle having an inner diameter of 0.6 mm at a tip of the tube. Then, the nozzle was connected to a high-voltage electric source. Further, a drum (collector, grounded) having a thin stainless steel plate with an electrically conductive fluorinated surface was placed at a position opposite to and separated from the nozzle (10 cm).

Thereafter, the fiberizable solution was introduced into the syringe, and discharged therefrom by a microfeeder in a direction perpendicular to the direction of gravitational force (discharging amount 1 mL/hour), while the drum was rotated at a constant rate (surface velocity: 3.6 m/min), a voltage of +15 kV was applied to the nozzle from the high-voltage electric source to apply an electrical field to the discharged fiberizable solution so that the fiberizable solution was fiberized. The ultrafine fibers were collected on the thin stainless steel plate of the drum to form a ultrafine fibrous aggregate (mass per unit area: 4.6 g/m<sup>2</sup>, thickness: 24 μm).

I, the undersigned declarant, declare further that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001, or Title 18, of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Singed this 17th day of April, 2009.

A handwritten signature in cursive script, reading "Masaaki Kawabe".

---

Masaaki KAWABE